



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/644,735  | 08/21/2003  | Myun-Joo Park        | SEC.1067            | 6201             |
| 20987   | 7590        | 07/31/2006           | EXAMINER            |                  |
| VOLENTINE FRANCOS, & WHITT PLLC<br>ONE FREEDOM SQUARE<br>11951 FREEDOM DRIVE SUITE 1260<br>RESTON, VA 20190 |             |                      | PHAN, TRONG Q.      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2827                |                  |

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                  |  |
|------------------------------|------------------------|------------------|--|
| <b>Office Action Summary</b> | Application No.        | Applicant(s)     |  |
|                              | 10/644,735             | PARK ET AL.      |  |
|                              | Examiner<br>TRONG PHAN | Art Unit<br>2827 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 May 2006.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 3,10 and 17 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,4-9,11-16 and 18-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4-9, 11-16 and 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuge, 6,466,496, in view of Johnson et al., 6,233,650.

Kuge, 6,466,496, discloses in Fig. 3 a memory system comprising:

#### **Regarding claims 1-2, 5-9, 13-16, 20-22 and 24:**

system controller 1 which is read on the memory controller;  
system data buses DQ each having a multi-bit structure (see lines 47, column 5) which may be a 32-bit (see lines 60, column 7), therefore, system data bus must inherently have a width of M bits where M can be a natural number or 32;  
a plurality of memory modules groups 1000A, 1000B and 1000C... which can be divided into first through P-th memory module groups each group having N memory modules of two, for examples, group 1 (1000A and 1000B), group 2 (1000B and 1000C)  
and so on... ; therefore, each of system data buses DQ having a width of M/N bits chip select signals /CS;  
the length of data transmission line/data transmission time can be made equal in compliance with JEDEC standard through line folding (see lines 23-29, column 3

and lines 66-67, column 5) which is read on the feature "wherein the N system data buses are wired such that data transmission times between the N memory modules within each of the first through P-th module groups and the memory controller are the same"

**Regarding claims 4-5, 11-12 and 18-19:**

as shown in Fig. 8, memory banks B0-B7;

**Regarding claims 23 and 25:**

as shown in Fig. 8, data input buffers 60 and 61 (see lines 1-11, column 8);

**Regarding claims 1, 8 and 15:**

What is not shown in Fig. 3 of Kuge, 6,466,496, is the first through P-th memory module groups are operated in response to respective first through P-th chip select signals as recited in claims 1, 8 and 15.

It should be noted that chip select signals /CS in Fig. 3 of Kuge, 6,466,496, can be divided into first through P-th chip select signals each including two chip select signals for selecting the two respective memory modules in each memory module group at the same time.

However, Johnson et al., 6,233,650, discloses in Fig. 1 the teaching of providing one chip select signal CS#4 as shown in Fig. 3A to a group of two memory modules 3 and 4 (see lines 35-39, column 4).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at time of the present invention was made to utilize the teaching of using one single chip select signal CS# 4 in Figs. 1 and 3A of Johnson et al., 6,233,650, for

Art Unit: 2827

selecting the two respective memory modules 1000A and 1000B in each memory module group in Fig. 3 of Kuge, 6,466,496, at the same time for the purpose of merely a matter of design choice for selecting two memory modules at the same time.

***Conclusion***

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Response to Arguments***

4. Applicant's arguments filed on 5/18/06 have been fully considered and are persuasive. Therefore, the office action of 2/27/06 has been withdrawn. However, in view of the newly discovered prior art of Johnson et al., 6,233,650, and upon further consideration, a new ground of rejection has been set forth and made FINAL as above.

Art Unit: 2827

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRONG PHAN whose telephone number is (571) 272-1794. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMIR ZARABIAN can be reached on (571)272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TRONG PHAN  
PRIMARY EXAMINER